Jameco Part number 156216

National Semiconductor

April 1998

LM1578A/LM2578A/LM3578A Switching Regulator

General Description

The LM1578A is a switching regulator which can easily be set up for such DC-to-DC voltage conversion circuits as the buck, boost, and inverting configurations. The LM1578A features a unique comparator input stage which not only has separate pins for both the inverting and non-inverting inputs, but also provides an internal 1.0V reference to each input, thereby simplifying circuit design and p.c. board layout. The output can switch up to 750 mA and has output pins for its collector and emitter to promote design flexibility. An external current limit terminal may be referenced to either the ground or the V_{in} terminal, depending upon the application. In addition, the LM1578A has an on board oscillator, which sets the switching frequency with a single external capacitor from <1 Hz to 100 kHz (typical).

The LM1578A is an improved version of the LM1578, offering higher maximum ratings for the total supply voltage and output transistor emitter and collector voltages.

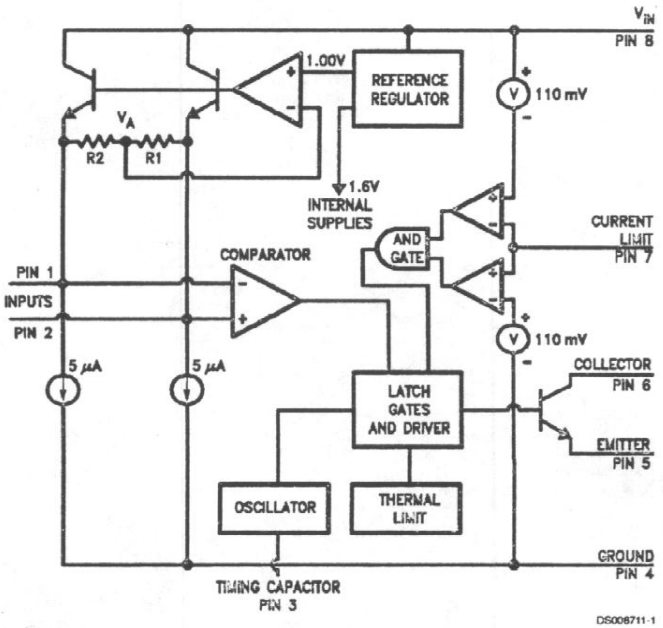
Features

- Inverting and non-inverting feedback inputs
- 1.0V reference at inputs
- Operates from supply voltages of 2V to 40V
- Output current up to 750 mA, saturation less than 0.9V
- Current limit and thermal shut down
- Duty cycle up to 90%

Applications

- Switching regulators in buck, boost, inverting, and single-ended transformer configurations
- Motor speed control
- Lamp flasher

Functional Diagram



© 1998 National Semiconductor Corporation